

Name:

Date:

/50

%

PART A In the space on the left, write the letter of the term or phrase which **best** completes the statement or answers the question (1 mark each).

- ____ 1. The slope of a velocity-time graph represents ...
a. Speed
b. Time interval
c. Acceleration
d. Displacement
- ____ 2. If a car is travelling at a constant velocity, it will have a ____ slope on a velocity-time graph.
a. Positive
b. Negative
c. Vertical
d. Horizontal
- ____ 3. An object that no longer accelerates and is travelling at a constant velocity is said to be at ...
a. Top velocity
b. Terminal velocity
c. Instantaneous velocity
d. Instantaneous acceleration
- ____ 4. A negative change in velocity over a time interval represents a ____ acceleration.
a. Constant
b. Zero
c. Negative
d. Positive
- ____ 5. When plotting a velocity-time graph, which data would you plot on the y-axis?
a. Distance
b. Time
c. Displacement
d. Velocity
- ____ 6. If an object at rest increases to velocity of +10 m/s in 4s, the acceleration of the object is ...
a. 40 m/s
b. 2.5 m/s
c. 40 m/s²
d. 2.5 m/s²

- ___ 7. Calculating the slope of the tangent to the line on a velocity-time graph represents ...
a. Displacement
b. Instantaneous velocity
c. Instantaneous acceleration
d. Terminal velocity
- ___ 8. Lines representing two runners are on a velocity-time graph. If line 1 is steeper than line 2 ...
a. Both runners are accelerating at the same rate
b. Runner 1 is accelerating at a faster rate than Runner 2
c. Runner 2 is accelerating at a faster rate than Runner 1
d. There is not enough information to compare the velocities of the runners
- ___ 9. A dropped object hits the ground 3s later. If gravity is -9.8 m/s^2 what is the velocity when it hits?
a. 29.4 m/s
b. 3.3 m/s
c. 29.4 m/s^2
d. 3.3 m/s^2
- ___ 10. The area under a line on a velocity-time graph represents ...
a. Distance
b. Displacement
c. Velocity
d. Acceleration

PART B In the space provided mark each of the following as true or false. (1 mark each)

- ___ 1. Acceleration is a scalar quantity.
- ___ 2. A horizontal line on a velocity-time graph represents no acceleration.
- ___ 3. The area under a line on a velocity-time graph is equal to the displacement.
- ___ 4. An object with a constant velocity has a negative acceleration.
- ___ 5. A velocity-time graph with a negative slope means a decrease in velocity is occurring.
- ___ 6. Acceleration that is in the same direction of motion is called constant velocity.
- ___ 7. Change in time can be captivated by dividing acceleration by change in velocity and
- ___ 8. A negative change in velocity means that the object is moving backwards.
- ___ 9. Velocity is graft on the y-axis of a velocity-time graph.
- ___ 10. A straight line on a velocity-time graph represents constant acceleration.

PART C In the space provided, match each term or phrase with the best definition. (1 mark each)

- | | |
|------------------------------|--|
| ___ 1. Gravity | A. First suggested by Galileo. |
| ___ 2. Negative acceleration | B. Represented by a positive slope of velocity-time graph. |
| ___ 3. Displacement | C. An attractive force that acts between two or more masses. |
| ___ 4. Time interval | D. Represented by a horizontal line on a velocity-time graph |
| ___ 5. Average acceleration | E. Travelling in unequal displacements over a time interval. |
| ___ 6. Positive acceleration | F. Occurs when objects in velocity changes at a constant rate over time. |
| ___ 7. Terminal velocity | G. _____ acceleration is acceleration at a particular moment in time. |
| ___ 8. Instantaneous | H. Represented by a negative slope on the velocity-time graph. |
| ___ 9. Constant acceleration | I. Travelling in equal displacements and equal time intervals. |
| ___ 10. No acceleration | J. Represented by the slope of a velocity-time graph. |

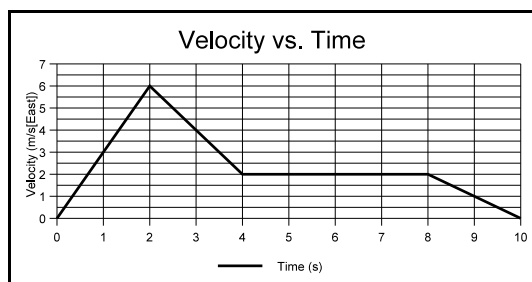
PART D Each of the following questions requires a short or calculated answer.

1. A rock is dropped from a cliff and hits the ground below with a velocity of 50 m/s. How long was the rock in air? Be sure to show all your calculations for full marks! (2 marks)

2. A car decelerates at -11m/s^2 for 3 seconds. Calculate the car's change in velocity. Show all your calculations for full marks. (2 marks)

3. If an object is experiencing a negative acceleration does it mean the object is moving backwards? Provide an example to support your answer. (2 marks)

Use this velocity-time graph to answer questions 4–11.



For each of the time intervals below, describe the acceleration of the object. (1 mark each)

4. 0s–2s

5. 2s–4s

6. 4s–8s

7. 8s–10s

Calculate the acceleration for each of the following time intervals, being sure to include the direction. Show all your calculations for full marks. (2 marks)

8. 0s–2s

9. 8s–10s

10. A ball is thrown upward with an initial velocity of 40 m/s . What will the ball's velocity be after 6 s ? The acceleration of gravity is 9.8 m/s^2 down. (2 marks)
11. After accelerating at 3 m/s^2 [E] for 3.5 s , a truck's velocity is 40 m/s [E]? What was the truck's initial velocity? (2 marks)
12. Use the velocity-time graph to calculate the displacement of the motorcycle over the 5 s interval. (2 marks)

